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#32

SUBSTITUTE DRAWINGS
FIGURES 1-20(v)



Figure 1a

Figure 1b

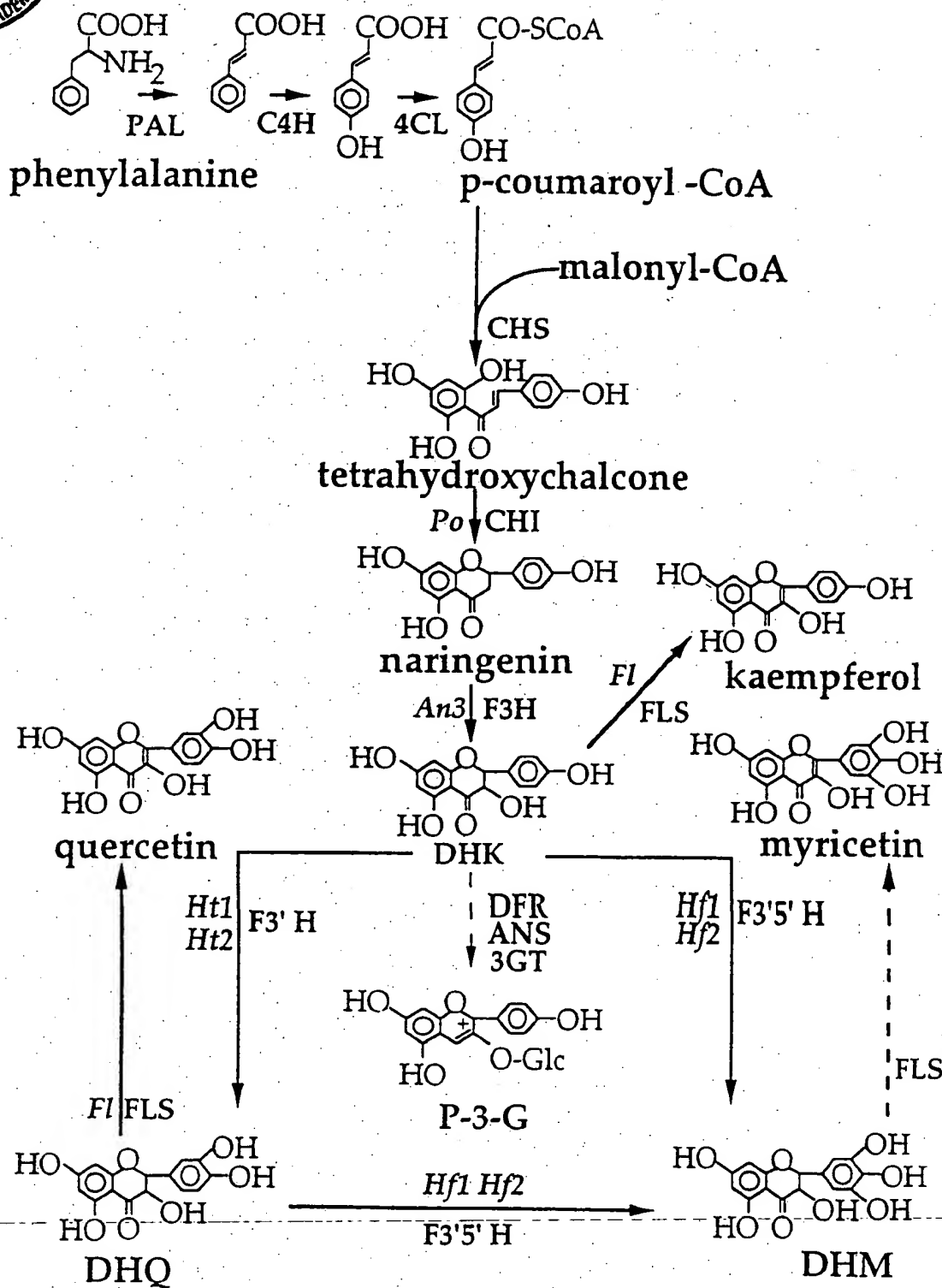


Figure 1a

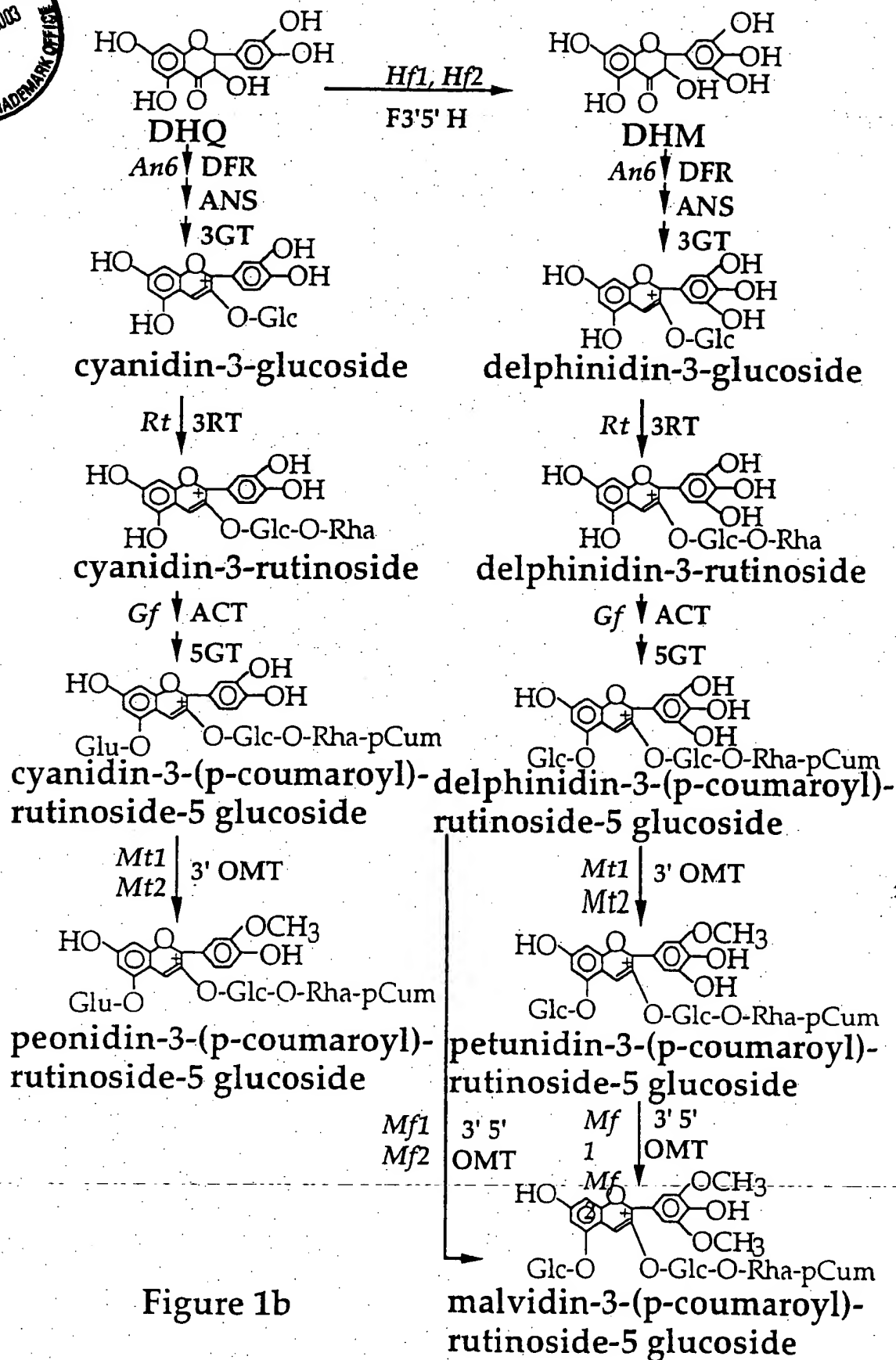


Figure 1b

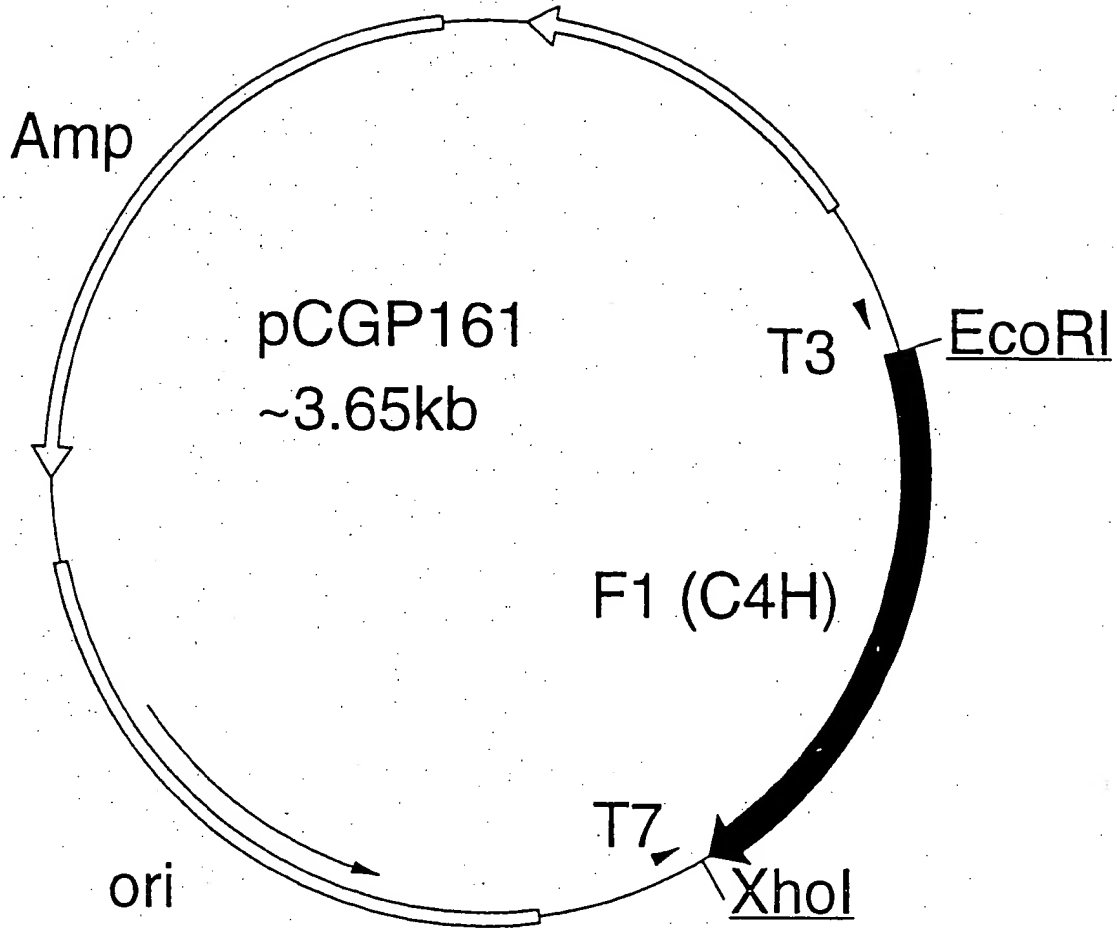


Figure 2

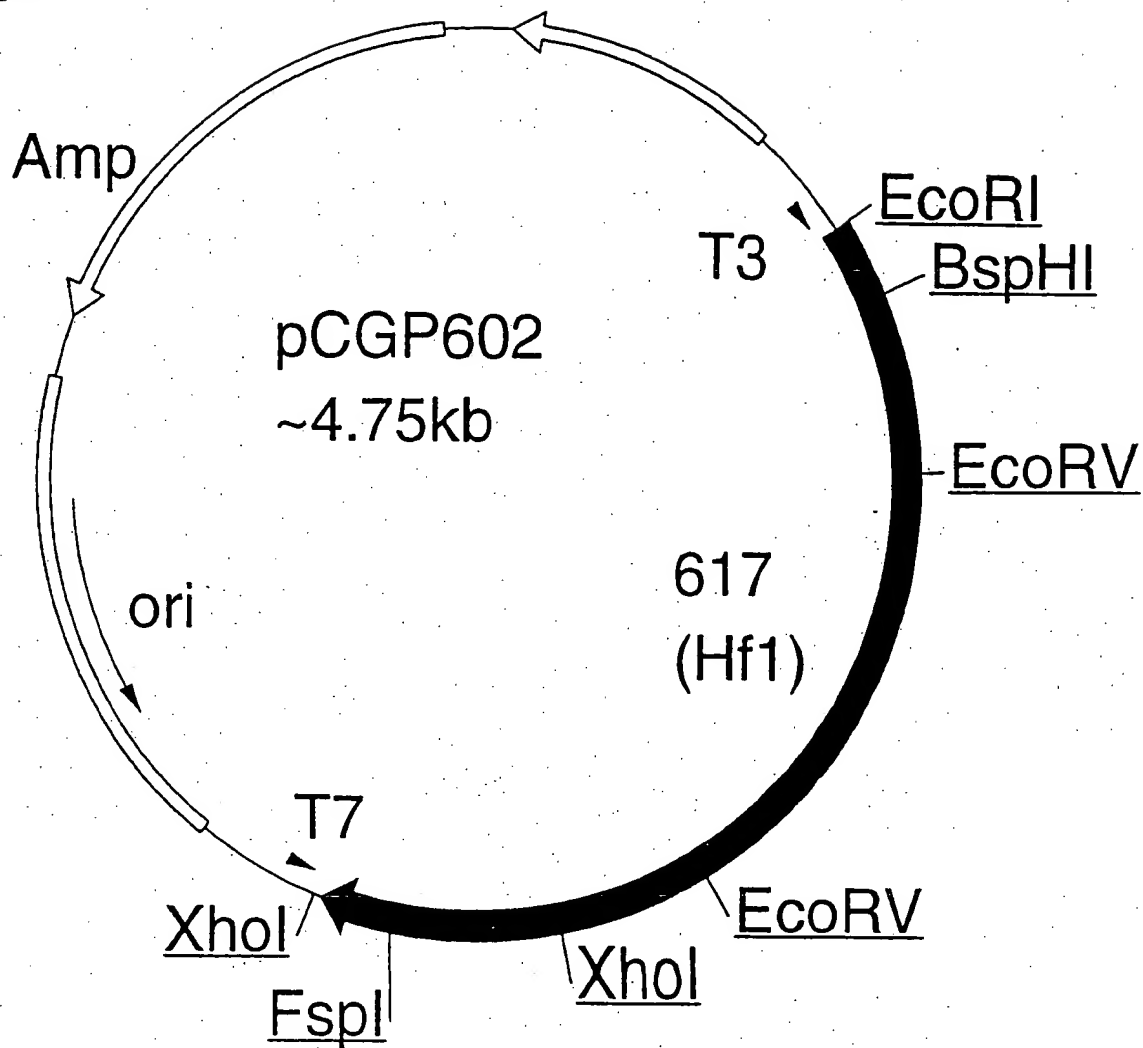


Figure 3

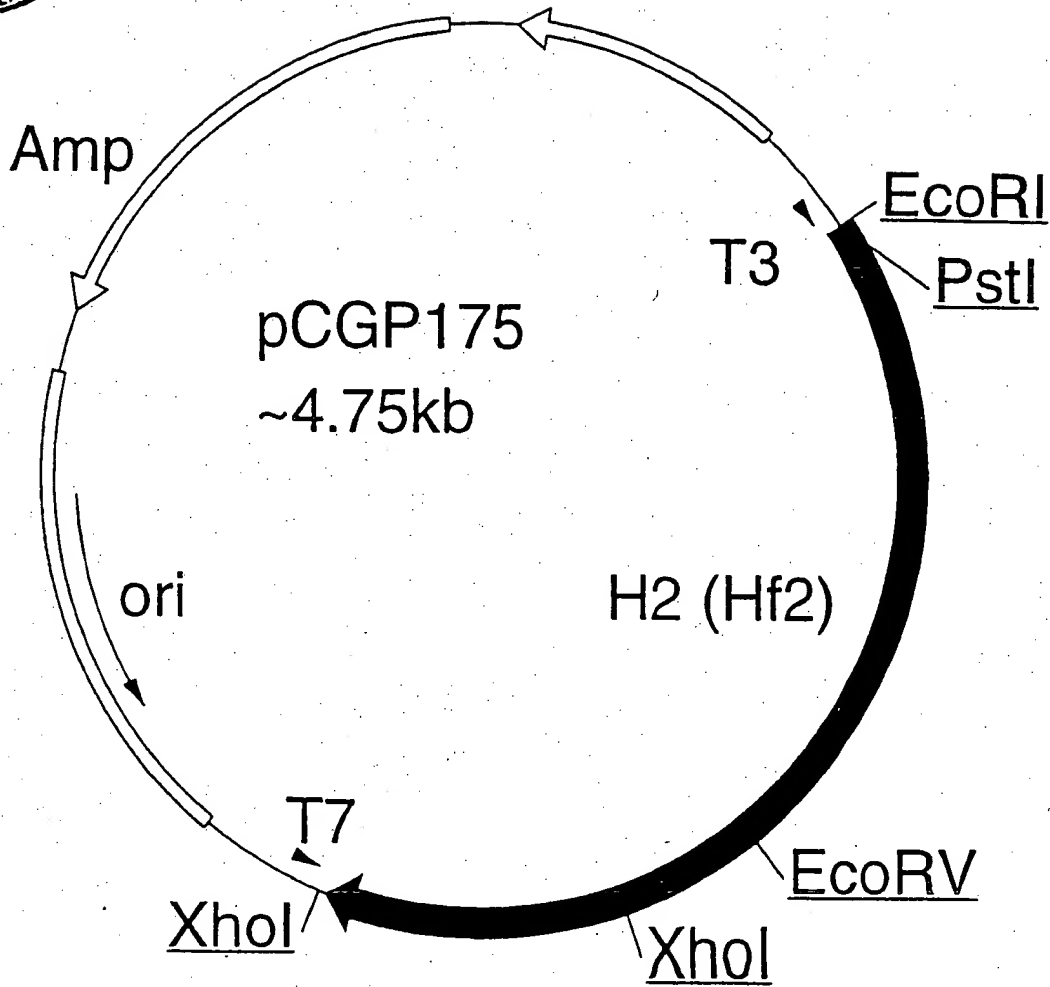


Figure 4

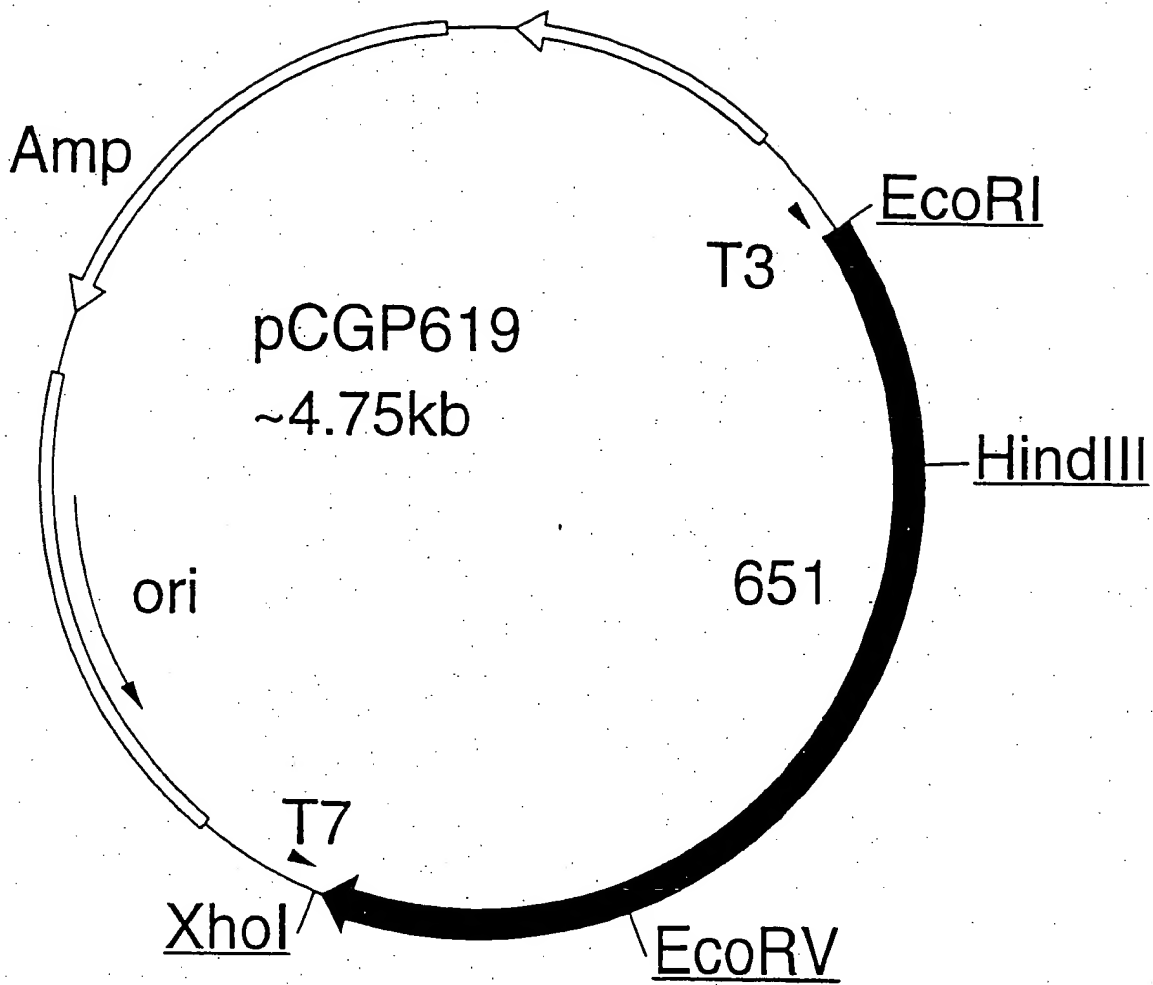


Figure 5

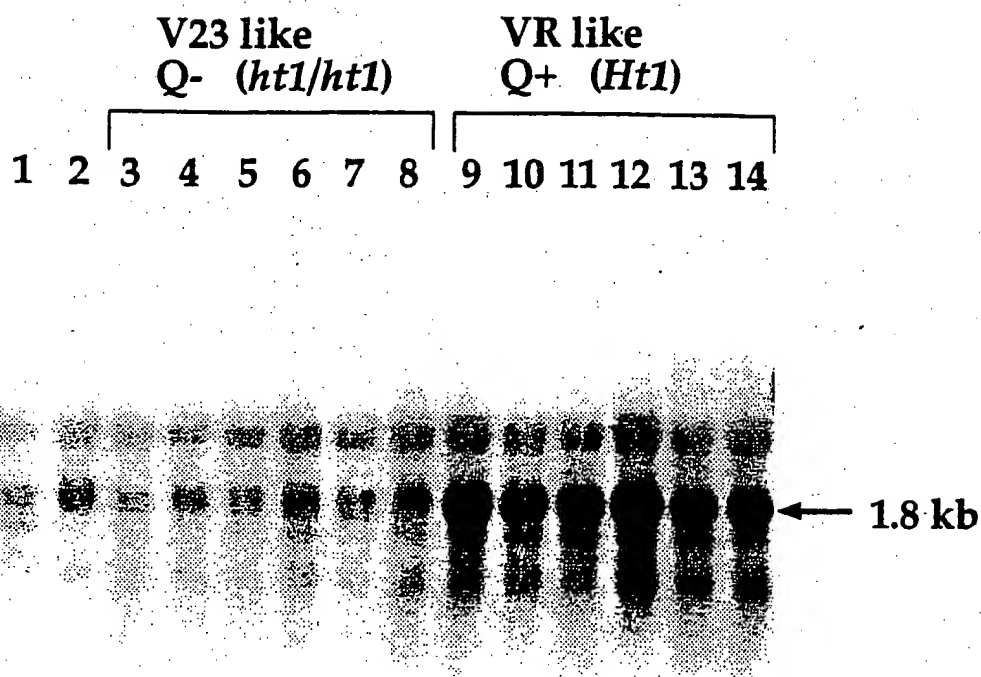


Figure 6

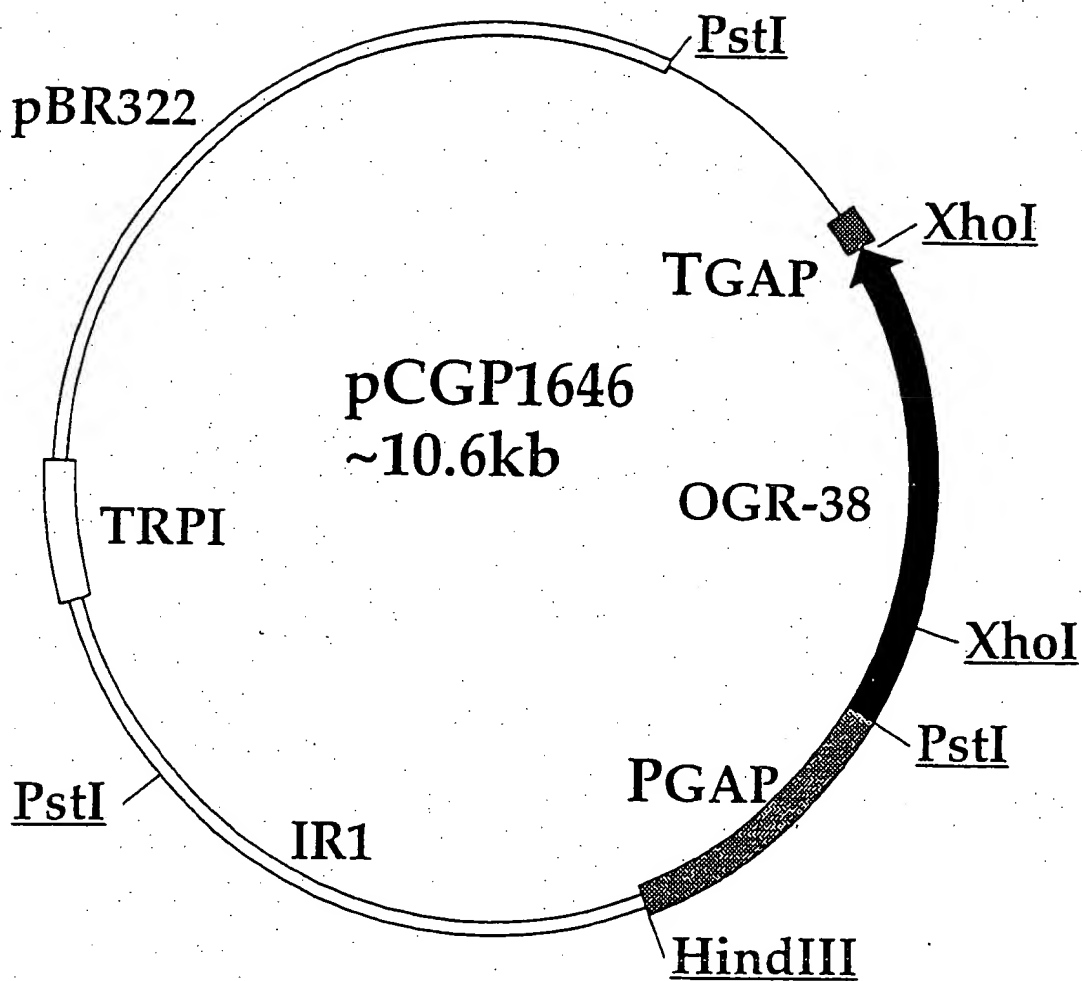


Figure 7

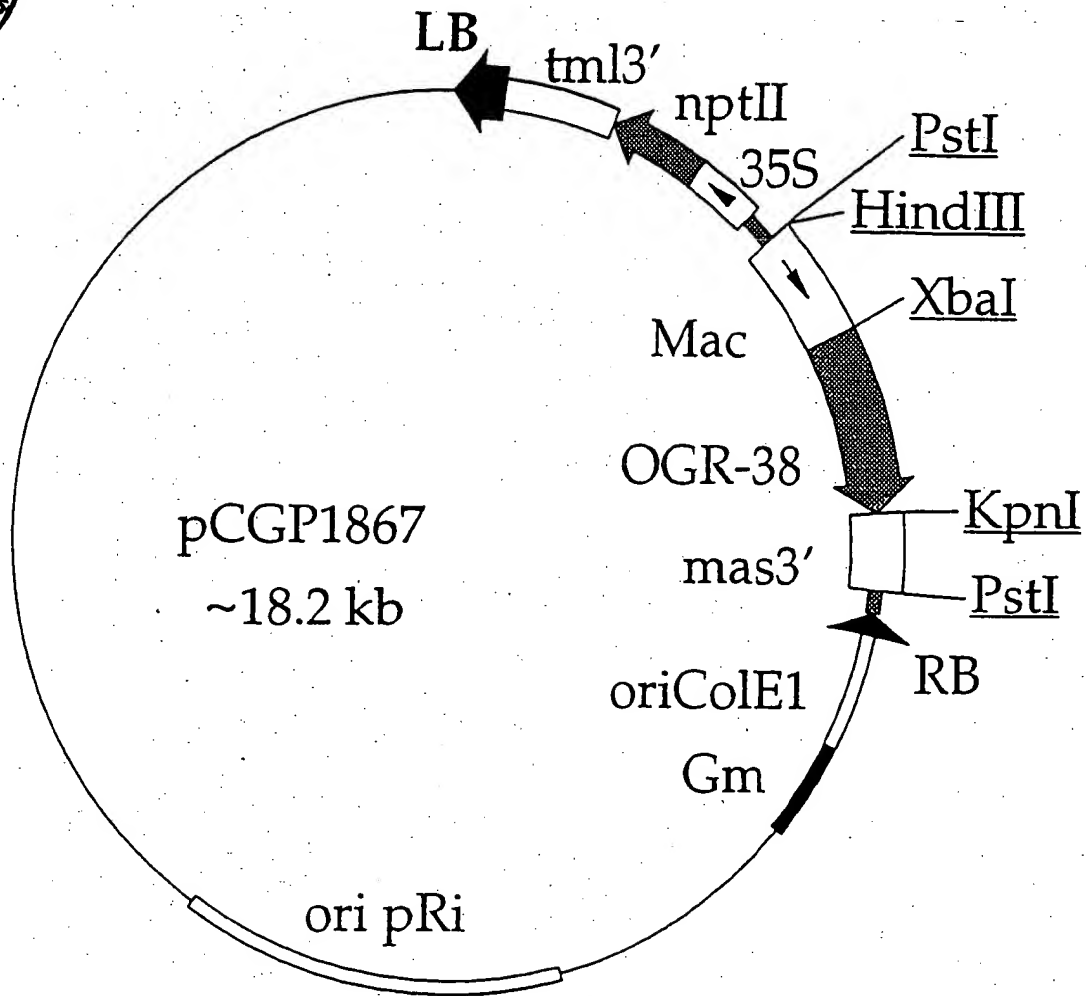


Figure 8

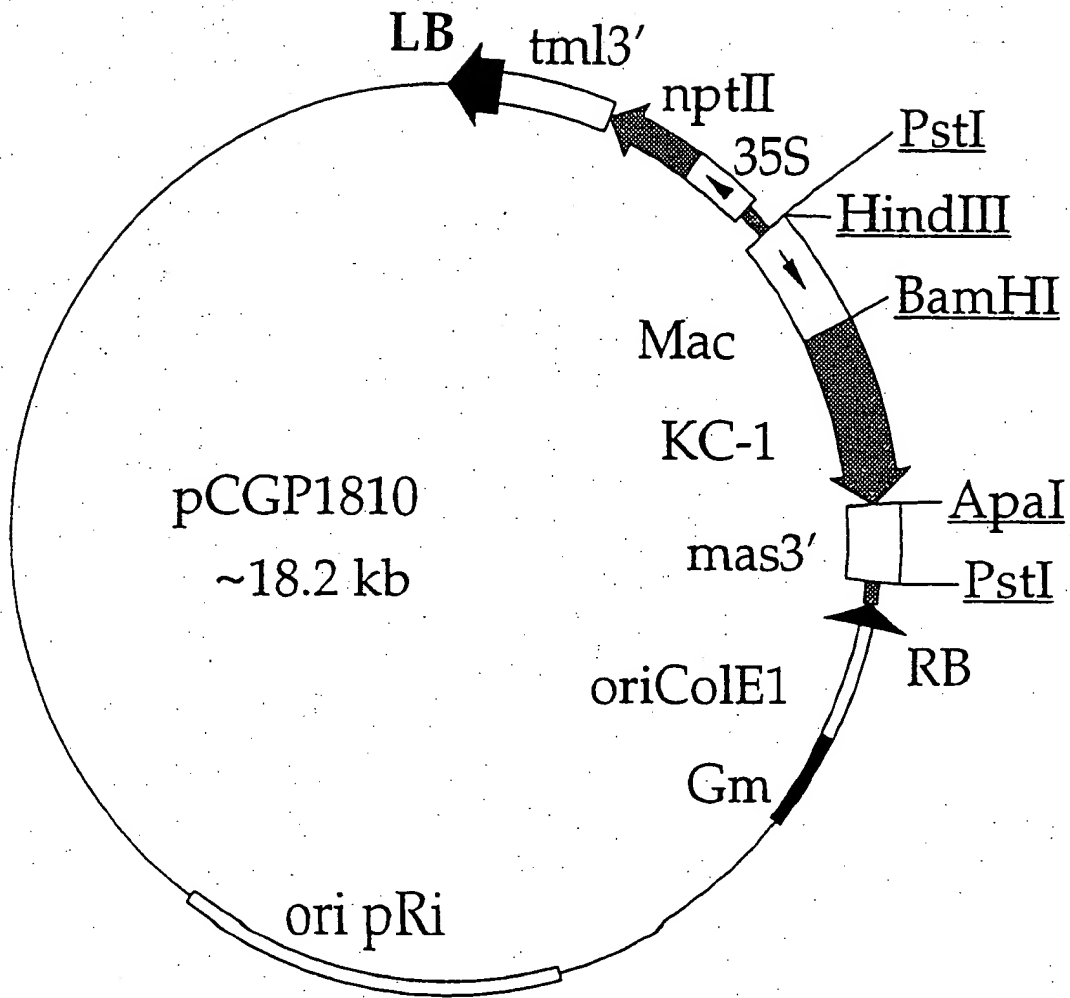


Figure 9

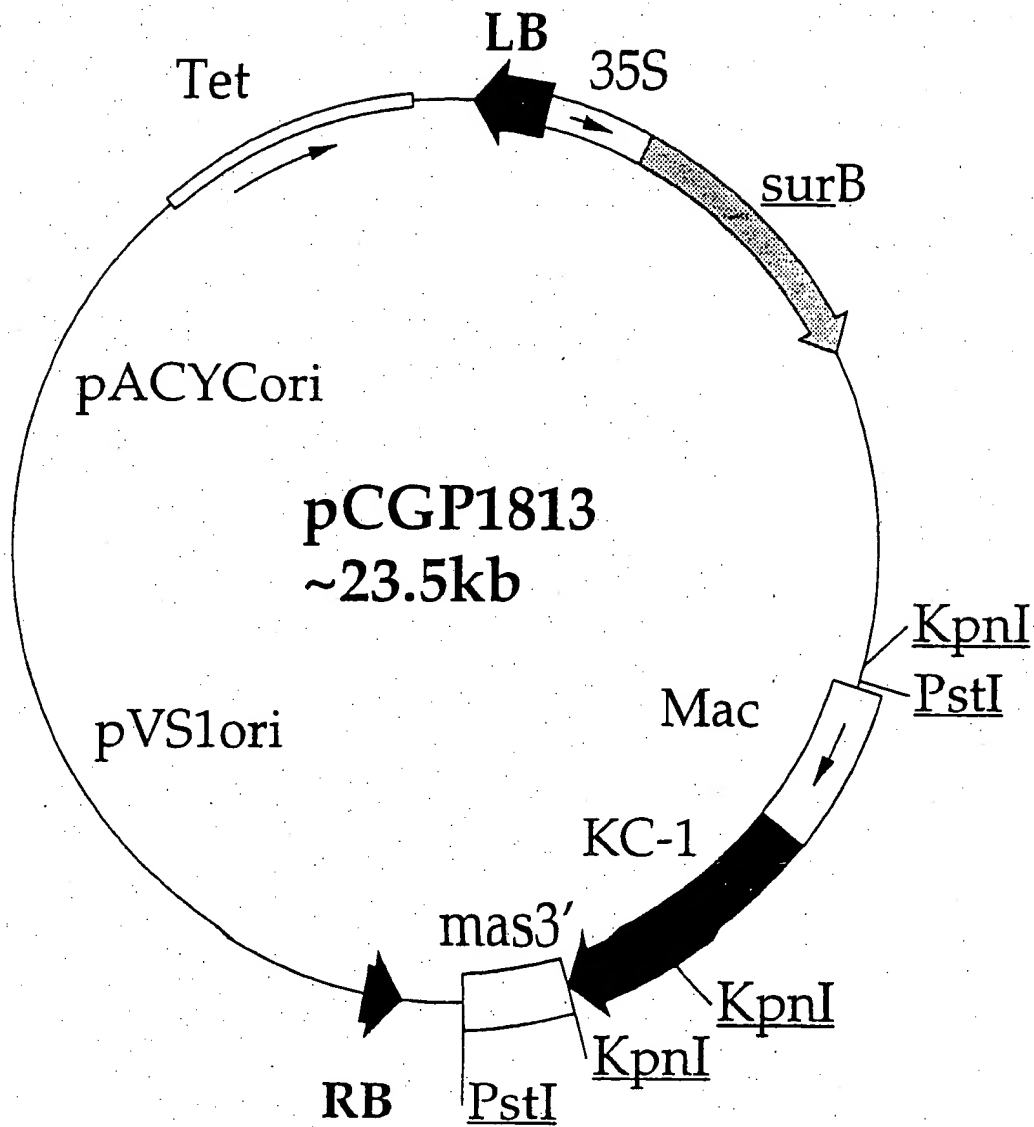


Figure 10



N8K16		N8 x K16 F2 population												
+	-	+	+	+	+	+	-	+	+	-	+	-	-	+
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

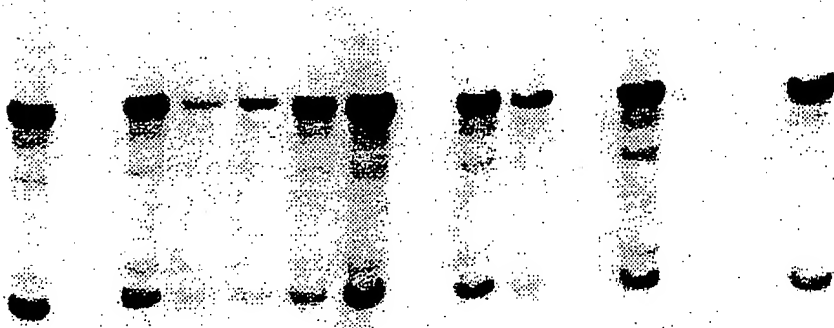


Figure 11



CYANIDIN + CYANIDIN -
#1 #3 #4 #5 #8 #6 #11 #12 #13L



← 1.8 kb

Figure 12

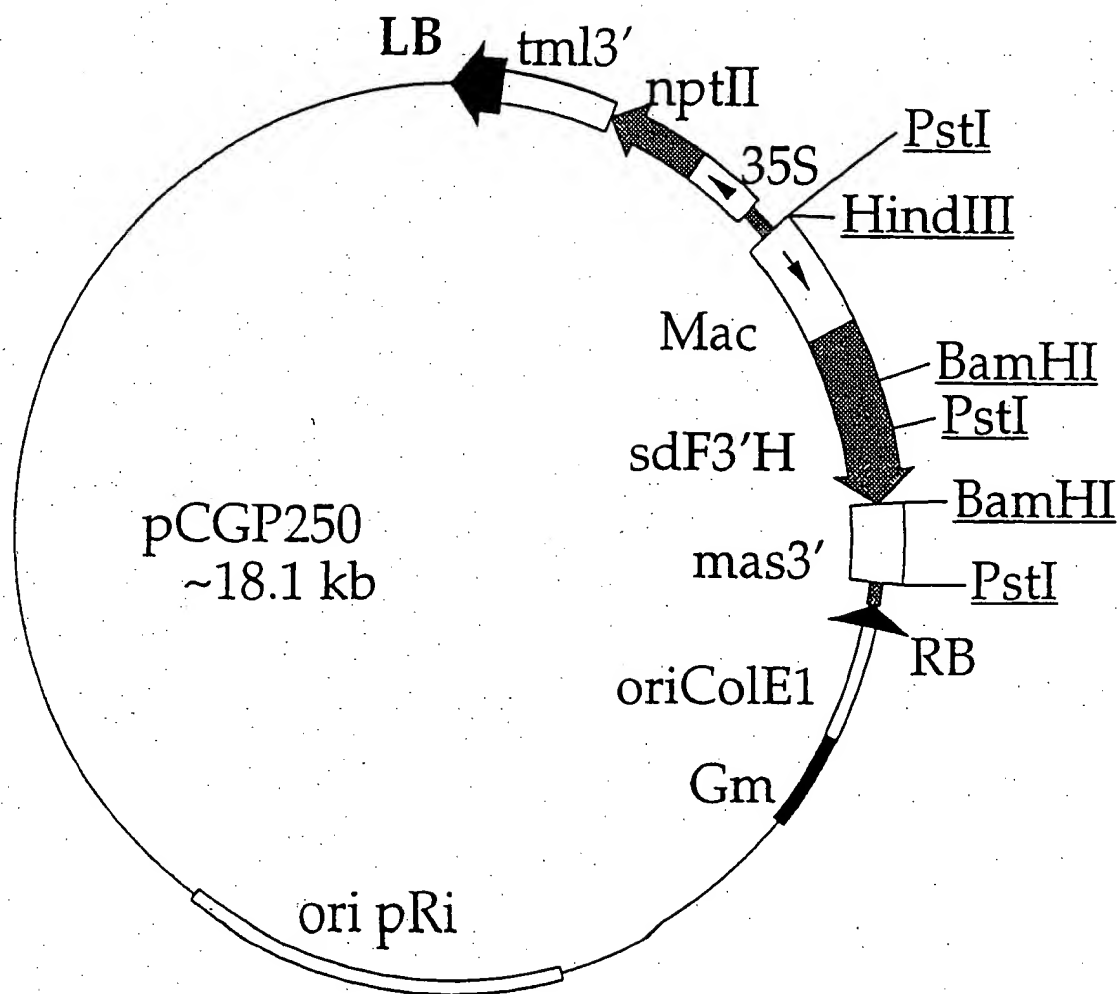


Figure 13

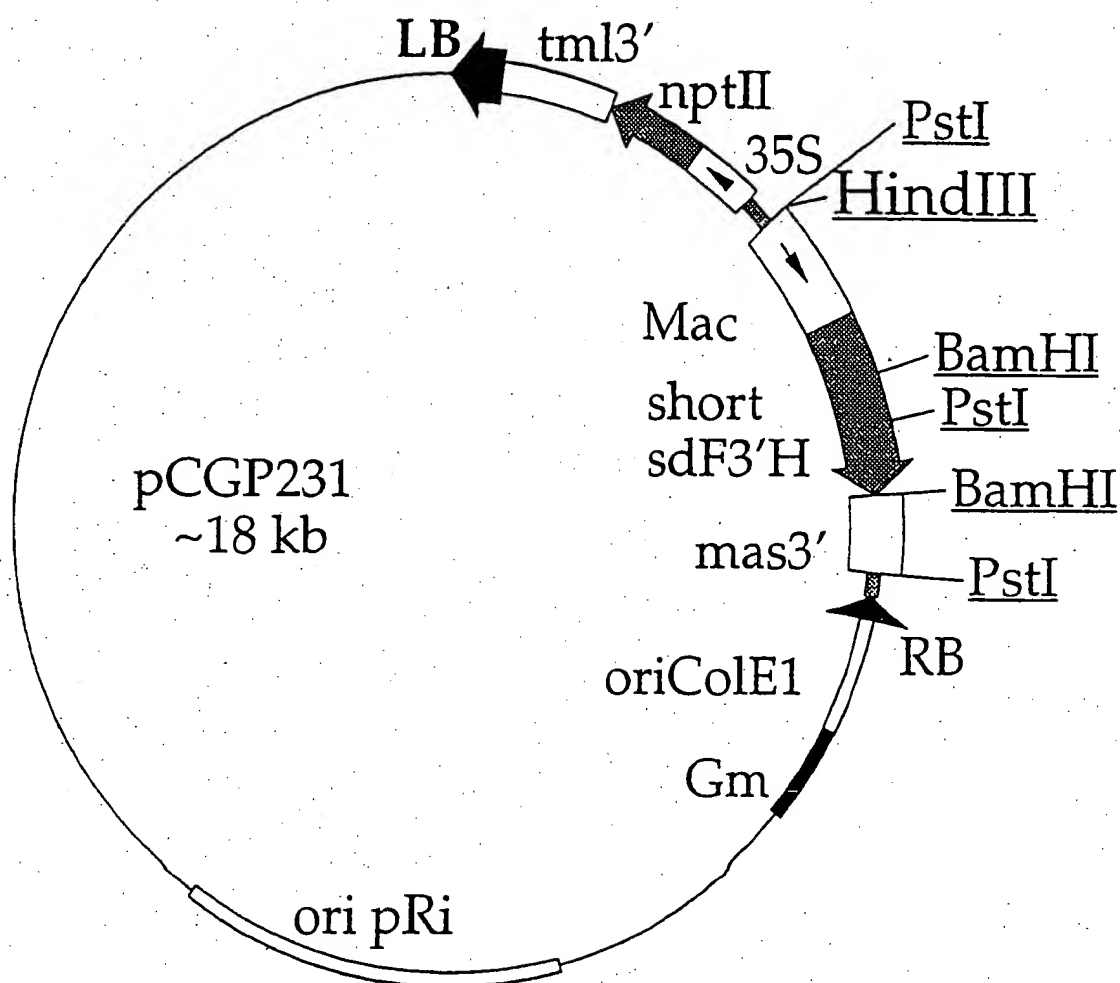


Figure 14

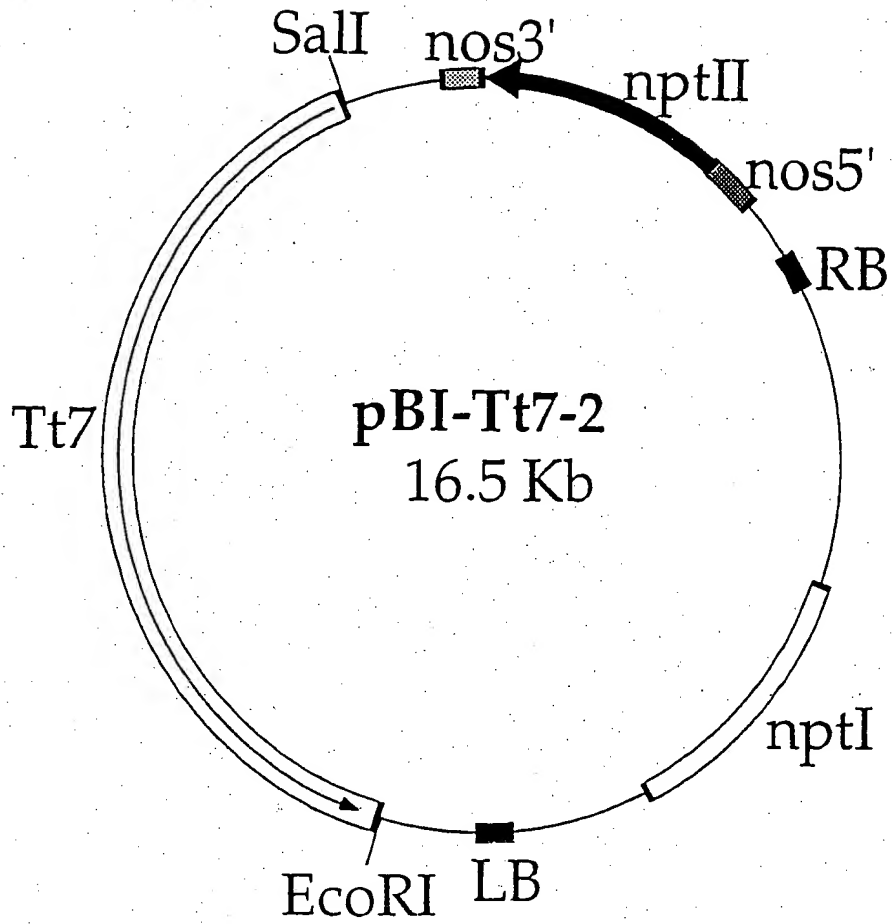


Figure 15

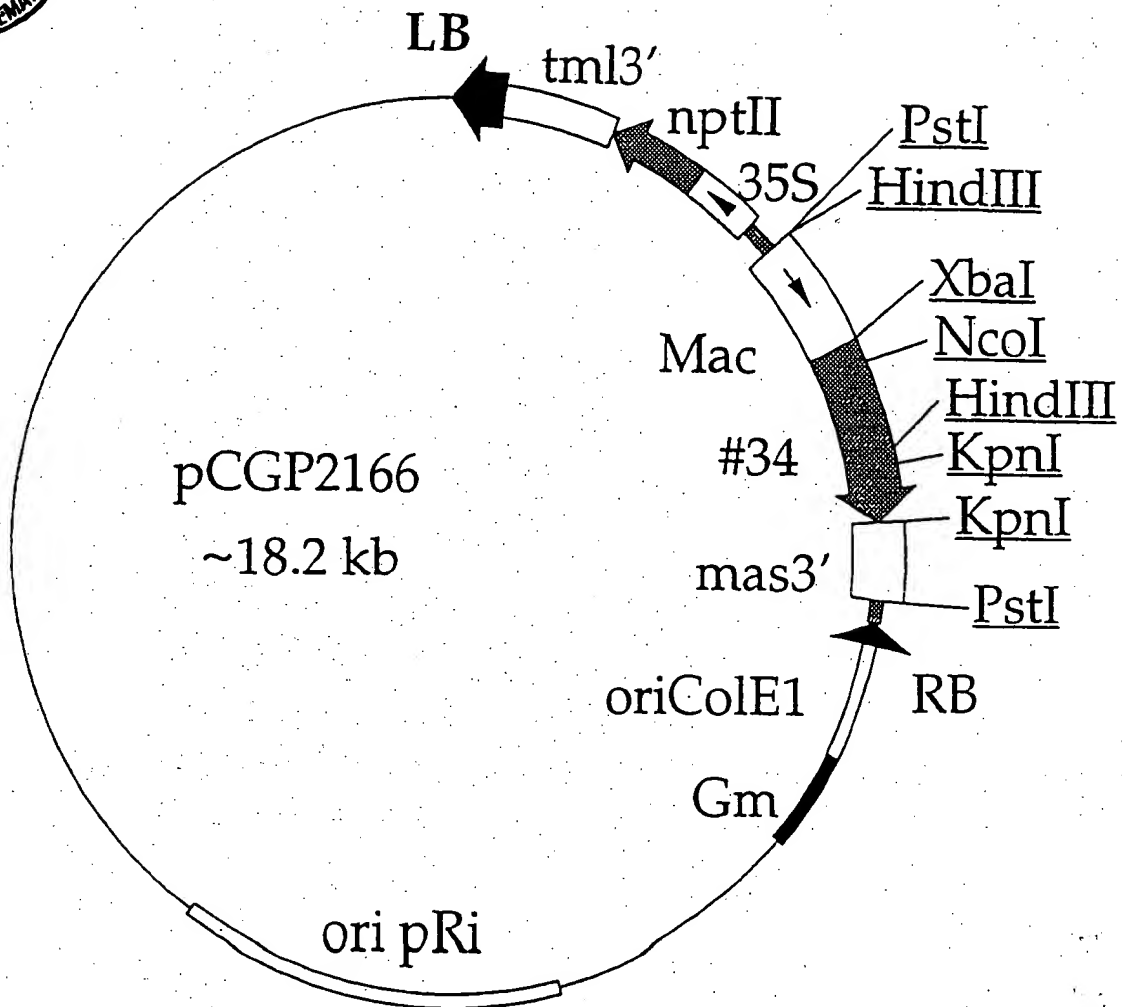


Figure 16

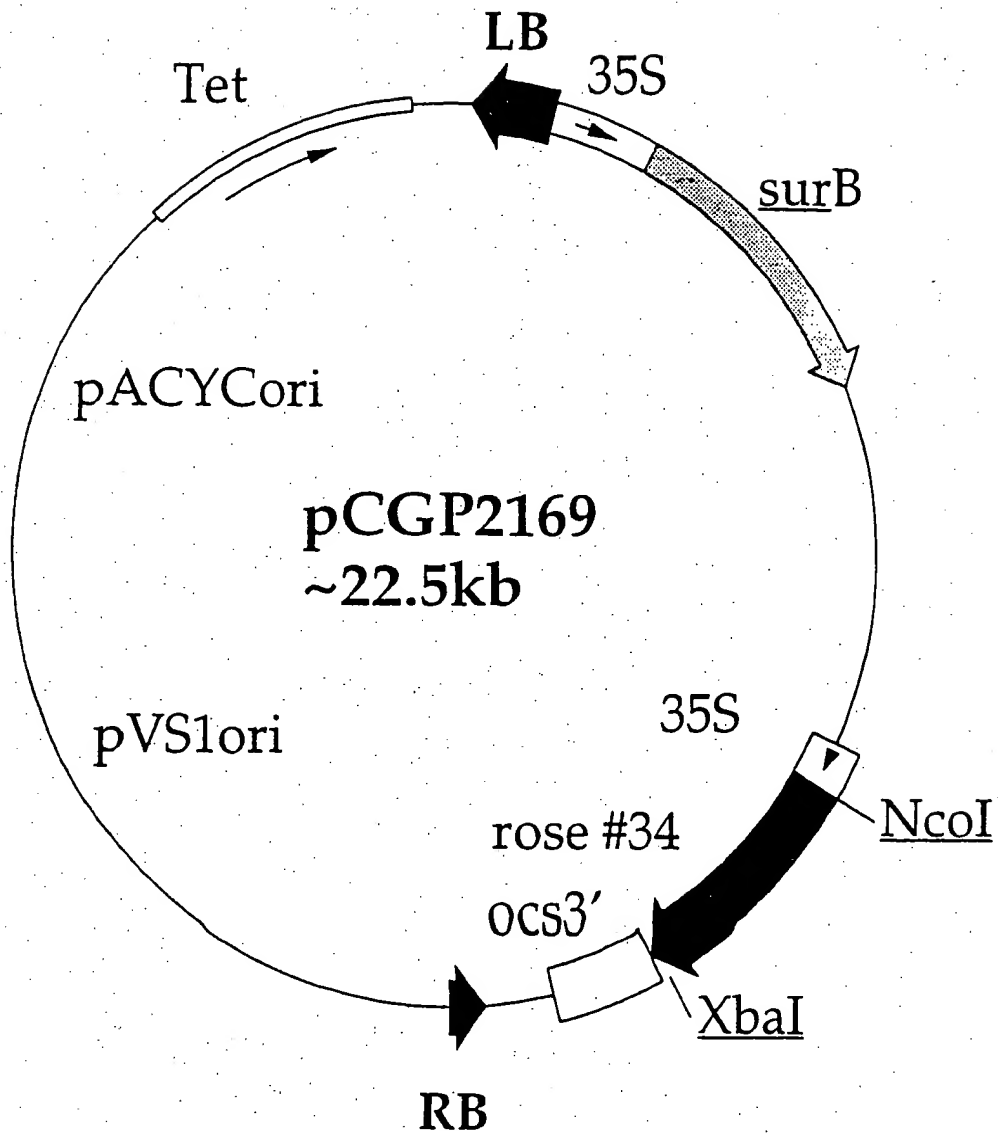


Figure 17

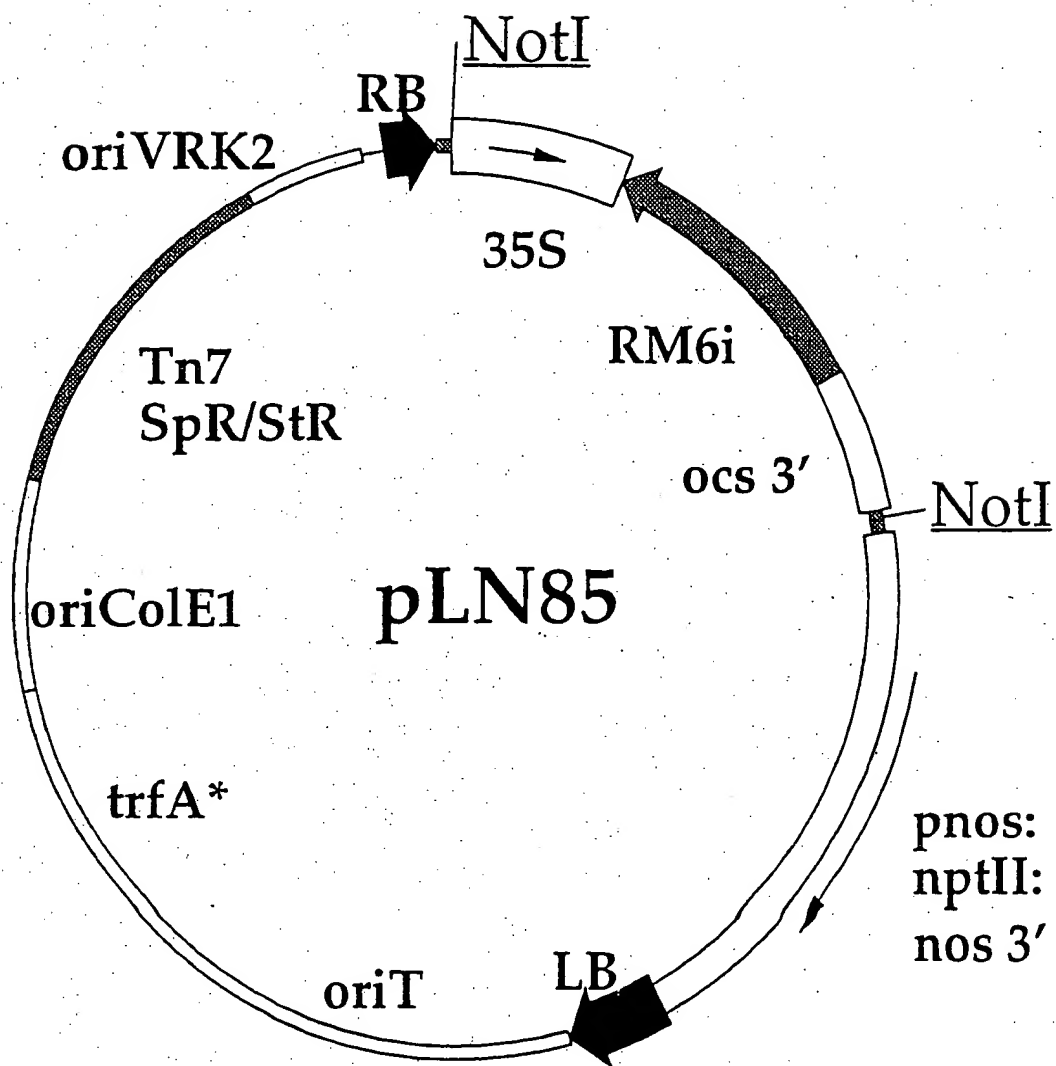


Figure 18

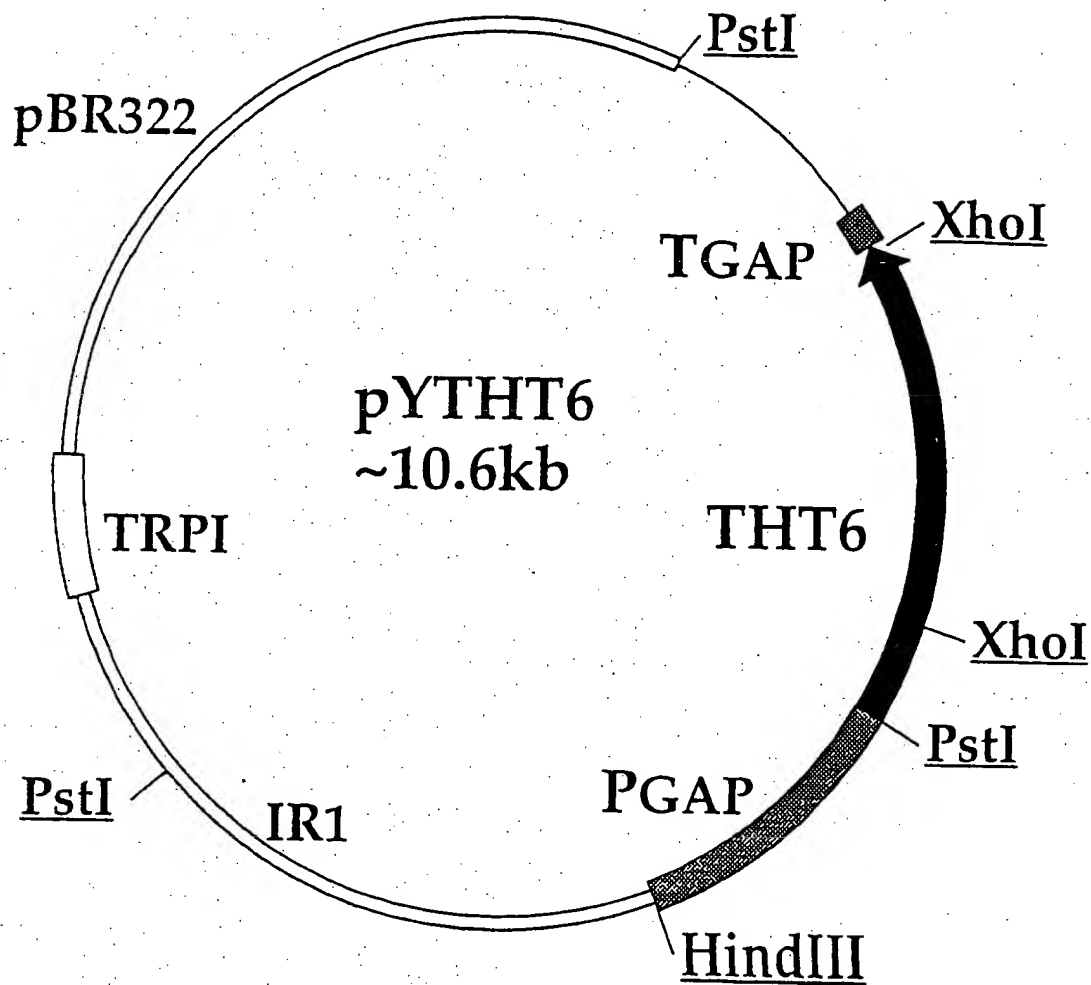


Figure 19

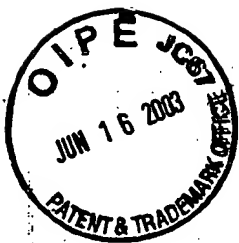


Figure 20 (ii)

A 111 Y N Y Q D L V F A P Y G P R W R M L R K I C S V H L F S T K 140
B 97 Y N Y Q D L V F A P Y G P K W R M L R K I C S L H M F S S K 126
C 121 Y N Y Q D L V F A P Y G P R W R M L R K I C A L H L F S A K 150
D 111 Y N Y Q D L V F A P Y G h R W R L L R K I S S V H L F S A K 140
E 109 Y N Y Q D L V F r P Y G P R W R M f R K I S S V H L F S g K 138
F 109 Y N Y Q D L V F A P Y G P R W R L L R K I C S V H L F S A K 138
G 112 Y N Y E D L V F r P Y G P K W R L L R K I C A q H I F S v K 141
H 108 Y N Y Q D L V F A P Y G P R W R M L R K I T S V H L F S A K 137
I 71 Y N Y Q D L V F A P Y G P R W R L L R K I C S V H L F S S K 100
J 1 0
K 110 h s d f s V V w l P v N s R W K t L R K I m n s s I F S g n 139

A 141 A L D D F R H V R Q D - - - E V k t L T R A L A s A G q k P 167
B 127 A L D D F R l V R Q E - - - E V S I L v n A I A k A G t k P 153
C 151 A L n D F t H V R Q D - - - E V g l L T R v L A d A G e t P 177
D 141 A L E D F K H V R Q E - - - E V g t L T R e L v r v G t k P 167
E 139 A L D D l K H V R Q E - - - E V S V L A H A L A n S G s k v 165
F 139 A L D D F R H V R Q E - - - E V A V L T R v L l s A G n s P 165
G 142 A M D D F R R V R E E - - - E V A I L S R A L A - - G k r a 166
H 138 A L D D F c H V R Q E - - - E V A t L T R S L A s A G k t P 164
I 101 A L D D F Q H V R h E - - - E I C I L i R A I A s g G h a P 127
J 1 r I L T R S I A s A G e n P 14
K 140 k L D g n Q H L R s k k v q E L i d y C Q k c A k n G e - a 168

A 168 V k L G Q L L N V C T T N A L A R V M L G K R V F a d G s G 197
B 154 V Q L G Q L L N V C T T N A L S R V M L G K R V l G d G t G 183
C 178 L k L G Q M M N t C A T N A I A R V M L G R R V v G h a d - - 206
D 168 V N L G Q L V N M C v v N A L g R e M I G R R L F G - - - a 194
E 166 V N L a Q L L N L C T v N A L g R V M V G R R V F G d G s G 195
F 166 V Q L G Q L L N V C A T N A L A R V M L G R R V F G - - - d 192
G 167 V p I G Q M L N V C A T N A L S R V M M G R R V v G h a d G 196
H 165 V k L G Q L L N V C T T N A L A R V M L G R K V F N d G g s 194
I 128 V N L G K L L G V C T T N A L A R V M L G R R V F e - G d G 156
J 15 I N L G Q L L G V C T T N A L A R V M L G R R V F G d G s G 44
K 169 V d I G R a t f g T T l N l L S n t I f s K d L t N - - - 194

A 198 d v D P Q A a E F K S M V V E M M V V A G V F N I G D F I P 227
B 184 k s D P K A E E F K d M V L E L M V L T G V F N I G D F V P 213
C 207 - - - s K A E E F K A M V V E L M V L A G V F N L G D F I P 233
D 195 d a D h K A D E F R S H v t E M M a L A G V F N I G D F V P 224
E 196 g d D P K A D E F K S M V V E M M V L A G V F N I G D F I P 225
F 193 g i D r s A n E F K d M V V E L M V L A G e F N L G D F I P 222
G 197 t n D a K A E E F K A M V V E L M V L S G V F N I G D F I P 226
H 195 k s D P K A E E F K S M v e E M M V L A G s F N I G D F I P 224
I 157 g e n P H A D E F K S M V V E I M V L A G a F N L G D F I P 186
J 45 g v D P Q A D E F K S M V V E I M V L A G a F N L G D F I P 74
K 195 p f s d s A k E F K e L V w n I M V e A G k p N L v D Y f P 224



Figure 20 (iii)

A	228	q	L	n	W	L	D	I	Q	G	V	A	A	K	M	K	K	L	H	A	R	F	D	A	F	L	T	d	I	L	E	257
B	214	a	L	E	c	L	D	L	Q	Q	V	A	S	K	M	K	K	L	H	k	R	l	D	n	F	M	S	n	I	L	E	243
C	234	p	L	E	k	L	D	L	Q	Q	V	i	A	K	M	K	K	L	H	l	R	F	D	S	F	L	S	k	I	L	g	263
D	225	s	L	D	W	L	D	L	Q	Q	V	A	g	K	M	K	R	L	H	k	R	F	D	A	F	L	S	s	I	L	k	254
E	226	s	L	E	W	L	D	L	Q	Q	V	A	S	K	M	K	K	L	H	k	R	F	D	d	F	L	T	a	I	V	E	255
F	223	v	L	D	l	f	D	L	Q	G	I	T	k	K	M	K	K	L	H	v	R	F	D	S	F	L	S	k	I	V	E	252
G	227	f	L	E	p	L	D	L	Q	Q	V	A	S	K	M	K	K	L	H	A	R	F	D	A	F	L	T	e	I	V	r	256
H	225	v	L	g	W	f	D	V	Q	G	I	v	g	K	M	K	K	L	H	A	R	F	D	A	F	L	n	t	I	L	E	254
I	187	v	L	D	W	f	D	L	Q	G	I	A	g	K	M	K	K	L	H	A	R	F	D	k	F	L	n	g	I	L	E	216
J	75	a	L	D	W	f	D	L	Q	G	I	T	A	K	M	K	K	V	H	A	R	F	D	A	F	L	d	a	I	L	E	104
K	225	f	L	E	k	I	D	p	Q	G	I	k	r	R	M	t	n	n	f	T	K	F	l	g	l	I	S	g	L	I	D	254

A	258	E	H	K	g	k	-	-	-	-	i	f	g	e	m	k	D	L	L	S	T	L	I	S	L	K	n	d	d	a	282		
B	244	E	H	K	s	v	a	-	-	-	-	h	q	q	n	g	g	D	L	L	S	i	L	I	S	L	K	-	d	n	c	268	
C	264	D	H	K	i	N	s	s	-	d	e	t	k	g	H	s	-	D	L	L	n	m	L	I	S	L	K	d	a	d	291		
D	255	E	H	e	m	N	g	-	-	-	-	q	d	q	K	h	t	D	M	L	S	T	L	I	S	L	K	g	t	d	l	280	
E	256	D	H	K	k	G	s	-	-	-	-	g	t	a	g	h	v	D	M	L	T	T	L	L	S	L	K	-	e	d	a	280	
F	253	E	H	K	t	a	p	-	-	-	-	g	g	l	g	h	t	D	L	L	S	T	L	I	S	L	K	d	d	a	d	278	
G	257	E	R	c	h	G	q	i	-	n	n	s	g	a	H	q	d	D	L	L	S	T	L	I	S	f	K	g	l	d	d	285	
H	255	E	H	K	c	v	n	n	q	h	t	t	l	s	K	d	v	D	f	L	S	T	L	I	r	L	K	d	n	g	a	284	
I	217	D	R	K	s	N	g	s	n	-	-	g	a	e	Q	y	v	D	L	L	S	v	L	I	S	L	Q	d	s	n	i	244	
J	105	E	H	K	s	N	g	s	r	-	-	g	a	k	Q	h	v	D	L	L	S	m	L	I	S	L	Q	d	n	n	i	132	
K	255	D	R	l	k	e	r	n	-	-	-	l	r	d	n	a	n	i	D	V	L	d	A	L	L	n	I	s	q	e	n	p	282

A	283	D	N	d	g	-	-	-	G	K	L	T	D	T	E	I	K	A	L	L	N	L	F	v	A	G	T	D	T	S	S	310				
B	269	D	G	-	-	e	-	-	G	G	K	f	S	a	T	E	I	K	A	L	L	L	d	L	F	T	A	G	T	D	T	S	296			
C	292	a	e	-	-	-	-	-	G	G	R	L	T	D	v	E	I	K	A	L	L	N	L	F	A	A	G	T	D	T	S	S	318			
D	281	D	G	-	-	d	-	-	G	G	s	L	T	D	T	E	I	K	A	L	L	N	M	F	T	A	G	T	D	T	S	A	308			
E	281	D	G	-	-	e	-	-	G	G	K	L	T	D	T	E	I	K	A	L	L	N	M	F	T	A	G	T	D	T	S	S	308			
F	279	i	e	-	-	-	-	-	G	G	K	L	T	D	T	E	I	K	A	L	L	N	L	F	A	A	G	T	D	T	S	S	305			
G	286	g	d	-	-	-	-	-	G	s	R	L	T	D	T	E	I	K	A	L	L	N	L	l	-	-	-	-	-	-	-	-	308			
H	285	D	m	d	c	e	e	-	G	K	L	T	D	T	E	I	K	A	L	L	N	L	F	T	A	G	T	D	T	S	S	S	314			
I	245	D	G	g	d	e	-	-	G	t	K	L	T	D	T	E	I	K	A	L	L	N	L	F	i	A	G	T	D	T	S	S	274			
J	133	D	G	-	e	s	-	-	G	a	K	L	T	D	T	E	I	K	A	L	L	N	L	F	T	A	G	T	D	T	S	S	161			
K	283	E	e	-	-	-	-	-	-	-	-	-	-	-	I	d	r	N	Q	I	e	q	L	c	L	d	L	F	A	A	G	T	D	T	S	306

A	311	S	T	V	E	W	A	I	A	E	L	I	R	N	P	K	I	L	a	Q	A	Q	Q	E	I	D	k	V	V	G	R	340
B	297	S	T	t	E	W	A	I	A	E	L	I	R	H	P	K	I	L	a	Q	v	Q	Q	E	M	D	s	V	V	G	R	326
C	319	S	T	V	E	W	C	I	A	E	L	V	R	H	P	e	I	L	a	Q	v	Q	k	E	L	D	s	V	V	G	K	348
D	309	S	T	V	D	W	A	I	A	E	L	I	R	H	P	d	I	M	v	K	A	Q	E	E	L	D	i	V	V	G	R	338
E	309	S	T	V	E	W	A	I	A	E	L	I	R	H	P	H	M	L	a	R	v	Q	k	E	L	D	d	f	V	G	H	338
F	306	S	T	V	E	W	A	I	A	E	L	I	R	H	P	Q	I	L	k	Q	A	R	E	E	I	D	a	V	V	G	Q	335
G	309	S	T	V	E	W	A	V	A	E	L	L	R	H	P	K	t	L	a	Q	v	R	Q	E	L	D	s	V	V	G	K	338
H	315	S	T	V	E	W	A	I	A	E	L	L	R	N	P	K	I	L	n	Q	A	Q	Q	E	L	D	l	V	V	G	Q	344
I	275	S	T	V	E	W	A	M	A	E	L	I	R	N	P	K	L	L	v	Q	A	Q	E	E	L	D	r	V	V	G	p	304
J	162	S	T	V	E	W	A	I	A	E	L	I	R	N	P	e	V	L	v	Q	A	Q	Q	E	L	D	r	V	V	G	p	191
K	307	n	T	L	E	W	A	M	A	E	L	L	Q	N	P	H	t	L	q	K	A	Q	E	E	L	a	q	V	I	G	K	336



Figure 20 (iv)

A	341	d	R	L	V	g	E	L	D	L	a	Q	L	t	Y	L	E	A	I	V	K	E	T	F	R	L	H	P	S	T	P	370
B	327	d	R	L	I	A	E	A	D	I	p	N	L	t	Y	f	Q	A	V	I	K	E	v	F	R	L	H	P	S	T	P	356
C	349	n	R	V	V	k	E	A	D	L	a	g	L	P	P	L	Q	A	V	V	K	E	N	F	R	L	H	P	S	T	P	378
D	339	d	R	p	V	n	E	S	D	I	a	Q	L	P	Y	L	Q	A	V	I	K	E	N	F	R	L	H	P	p	T	P	368
E	339	d	R	L	V	T	E	S	D	I	p	N	L	P	Y	L	Q	A	V	I	K	E	T	F	R	L	H	P	S	T	P	368
F	336	d	R	L	V	T	E	l	D	L	s	Q	L	t	Y	L	Q	A	L	V	K	E	v	F	R	L	H	P	S	T	P	365
G	339	n	R	L	V	S	E	T	D	L	n	Q	L	P	Y	L	Q	A	V	V	K	E	T	F	R	L	H	P	p	T	P	368
H	345	n	Q	L	V	T	E	S	D	L	t	d	L	P	P	L	Q	A	I	V	K	E	T	F	R	L	H	P	S	T	P	374
I	305	n	R	f	V	T	E	S	D	L	p	Q	L	t	F	L	Q	A	V	I	K	E	T	F	R	L	H	P	S	T	P	334
J	192	s	R	L	V	T	E	S	D	L	p	Q	L	a	F	L	Q	A	V	I	K	E	T	F	R	L	H	P	S	T	P	221
K	337	g	K	q	V	e	E	A	D	V	g	r	L	P	Y	L	r	C	I	V	K	E	T	l	R	I	H	P	A	A	P	366

A	371	L	S	L	P	R	I	A	S	E	S	C	E	I	N	G	Y	f	I	P	K	G	S	T	L	L	L	N	V	W	A	400
B	357	L	S	L	P	R	V	A	n	E	S	C	E	I	N	G	Y	h	I	P	K	N	T	T	L	L	V	N	V	W	A	386
C	379	L	S	L	P	R	I	A	h	E	S	C	E	V	N	G	Y	l	I	P	K	G	S	T	L	L	V	N	V	W	A	408
D	369	L	S	L	P	H	I	A	S	E	S	C	E	I	N	G	Y	h	I	P	K	G	S	T	L	L	t	N	I	W	A	398
E	369	L	S	L	P	R	M	A	A	E	S	C	E	I	N	G	Y	h	I	P	K	G	S	T	L	L	V	N	V	W	A	398
F	366	L	S	L	P	R	I	S	S	E	S	C	E	V	d	G	Y	y	I	P	K	G	S	T	L	L	V	N	V	W	A	395
G	369	L	S	L	P	R	L	A	e	d	d	C	E	I	d	G	Y	l	I	P	K	G	S	T	L	L	V	N	V	W	A	398
H	375	L	S	L	P	R	M	g	A	Q	g	C	E	I	N	G	Y	f	I	P	K	G	A	T	L	L	V	N	V	W	A	404
I	335	L	S	L	P	R	M	A	A	E	d	C	E	I	N	G	Y	y	V	s	e	G	S	T	L	L	V	N	V	W	A	364
J	222	L	S	L	P	R	M	A	S	E	g	C	E	I	N	G	Y	s	I	P	K	G	S	T	L	L	V	N	V	W	S	251
K	367	L	l	I	P	R	k	v	e	E	d	v	E	L	s	t	Y	i	I	P	K	d	s	q	V	L	V	N	V	W	A	396

A	401	I	A	R	D	P	n	a	W	A	D	P	L	E	F	R	P	E	R	F	L	P	G	G	E	K	P	k	V	D	V	430
B	387	I	A	R	D	P	e	V	W	A	D	P	L	E	F	K	P	E	R	F	L	P	G	G	E	K	P	N	V	D	V	416
C	409	I	A	R	D	P	n	V	W	d	E	P	L	E	F	R	P	E	R	F	L	k	G	G	E	K	P	N	V	D	V	438
D	399	I	A	R	D	P	d	q	W	S	D	P	L	a	F	K	P	E	R	F	L	P	G	G	E	K	s	G	V	D	V	428
E	399	I	S	R	D	P	a	e	W	A	D	P	L	E	F	K	P	E	R	F	L	P	G	G	E	K	P	N	V	D	I	428
F	396	I	A	R	D	P	k	M	W	A	D	P	L	E	F	R	P	s	R	F	L	P	G	G	E	K	P	G	a	D	V	425
G	399	I	A	R	D	P	k	V	W	A	D	P	L	E	F	R	P	E	R	F	L	t	G	G	E	K	a	d	V	D	V	428
H	405	I	A	R	D	P	n	V	W	T	n	P	L	E	F	n	P	h	R	F	L	P	G	G	E	K	P	N	V	D	I	434
I	365	I	A	R	D	P	n	a	W	A	n	P	L	D	F	n	P	t	R	F	L	a	G	G	E	K	P	N	V	D	V	394
J	252	I	A	R	D	P	s	I	W	A	D	P	L	E	F	R	P	a	R	F	L	P	G	G	E	K	P	N	V	D	V	281
K	397	I	g	R	n	s	d	L	W	e	n	P	L	V	F	K	P	E	R	F	w	e	s	-	-	-	e	I	D	I	422	

A	431	R	G	N	D	F	E	V	I	P	F	G	A	G	R	R	I	C	A	G	M	n	L	G	I	R	M	V	Q	L	M	460
B	417	K	G	N	D	F	E	L	I	P	F	G	A	G	R	R	I	C	A	G	L	S	L	G	L	R	M	V	Q	L	M	446
C	439	R	G	N	D	F	E	L	I	P	F	G	A	G	R	R	I	C	A	G	M	S	L	G	I	R	M	V	Q	L	L	468
D	429	K	G	s	D	F	E	L	I	P	F	G	A	G	R	R	I	C	A	G	L	S	L	G	L	R	t	I	Q	f	L	458
E	429	R	G	N	D	F	E	V	I	P	F	G	A	G	R	R	I	C	A	G	M	S	L	G	L	R	M	V	H	L	M	458
F	426	R	G	N	D	F	E	V	I	P	F	G	A	G	R	R	I	C	A	G	M	S	L	G	L	R	M	V	Q	L	L	455
G	429	K	G	N	D	F	E	V	I	P	F	G	A	G	R	R	I	C	A	G	V	g	L	G	I	R	M	V	Q	L	L	458
H	435	K	G	N	D	F	E	V	I	P	F	G	A	G	R	R	I	C	S	G	M	S	L	G	I	R	M	V	H	L	L	464
I	395	K	G	N	D	F	E	V	I	P	F	G	A	G	R	R	I	C	A	G	M	S	L	G	I	R	M	V	Q	L	V	424
J	282	R	G	N	D	F	E	V	I	P	F	G	A	G	R	R	I	C	A	G	M	S	L	G	L	R	M	V	Q	L	S	311
K	423	R	G	r	D	F	E	L	I	P	F	G	A	G	R	R	I	C	p	G	L	p	L	a	M	R	M	I	p	V	a	452

